Effects of Equal and Expanding Spacing on EFL Learners' Receptive and Productive Vocabulary Retrieval

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Significance of Vocabulary

- **Vocabulary plays a prominent role in successful communication.**
- **Most L2 learners usually consider vocabulary as:**
  - The major hindrance to reading comprehension
  - The greatest impediment to listening comprehension, followed by speaking speed and accent
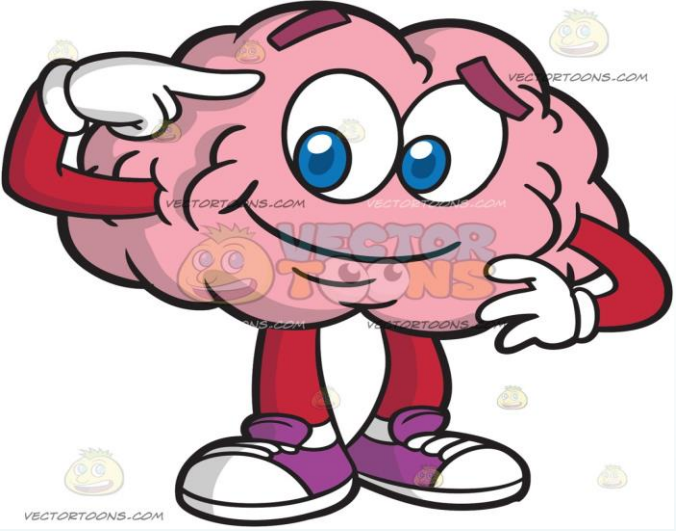 - The greatest obstruction to writing

Learners usually find the task of learning lexical items daunting:
1. **great number of the words**
2. **little time**

Thus they use a variety of strategies to simplify this task. The most important of such strategies, cognitive strategies, are closely related to individuals' working memory capacity

Memory and Vocabulary Learning

- As a component of the human mind, memory has a key interface with language learning.

- Most forgetting occurs immediately after initial exposure to the word. Thus the older the piece of information, the more slowly it will be forgotten.

- The bulk of research on L2 lexical processing builds upon Baddeley's model of working memory and its various components.

Baddeley's Model of Working Memory
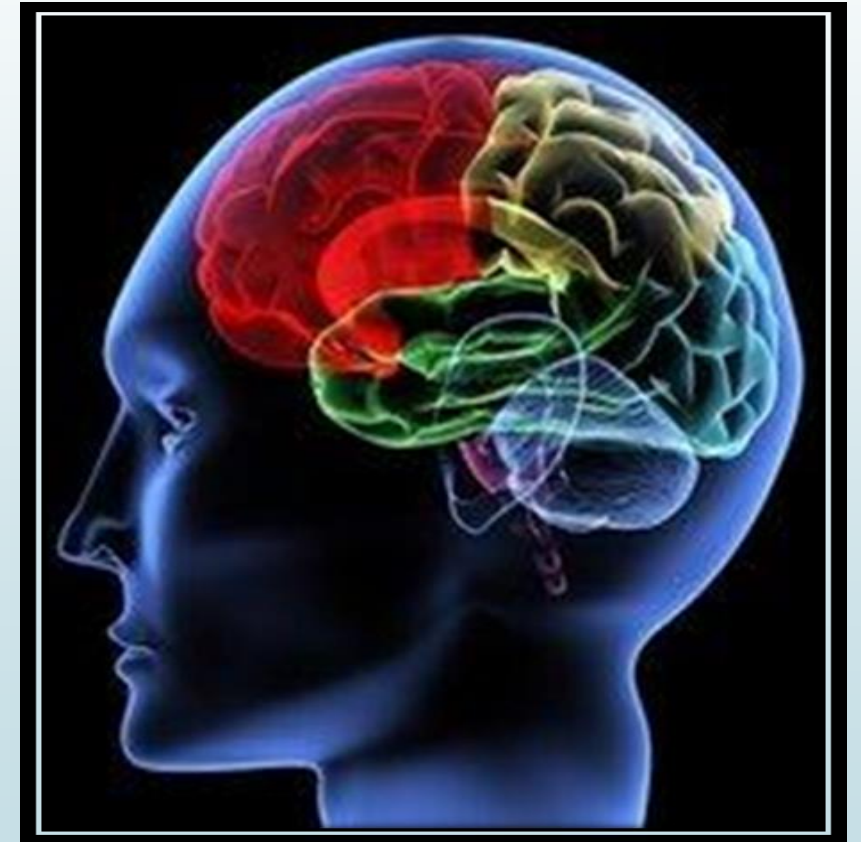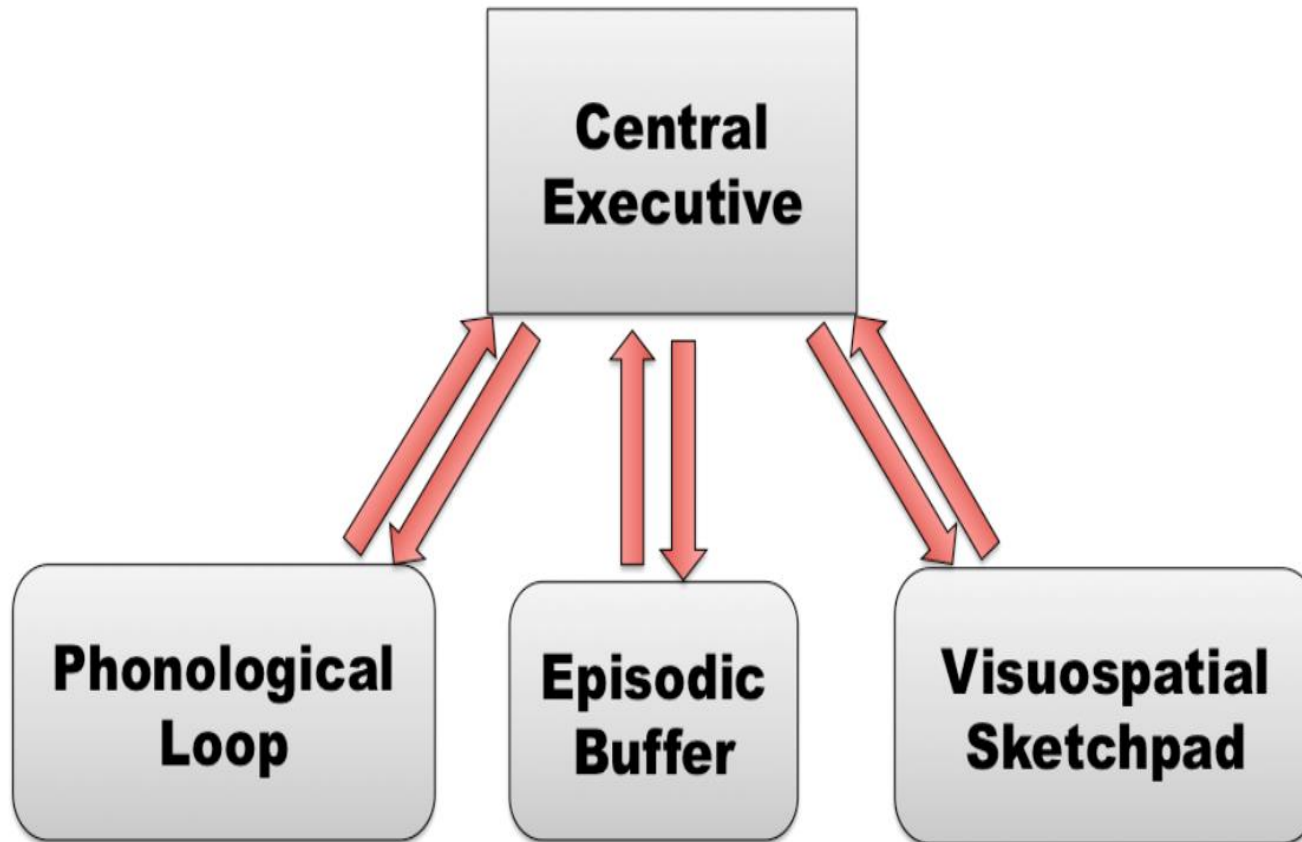
Central executive

directs attention to a word that needs to be processed

Phonological loop (PM) stores auditory and phonological information + includes the capacity to rehearse noticed input at a subvocal level: particularly important for lexical processing.
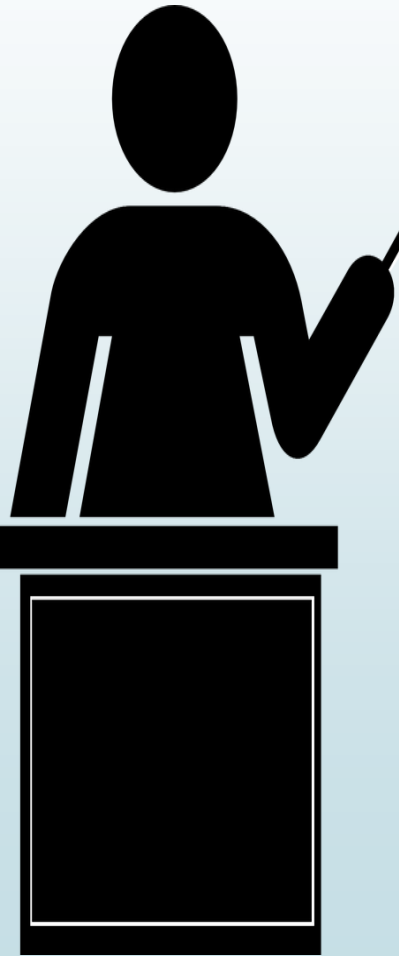
Visuo-spatial sketchpad processes visual information

Episodic buffer stores, integrates, and manipulates various information

## Subordination of Grammar Acquisition to Vocabulary Acquisition:

✓ Without a vast body of vocabulary knowledge, even those who show mastery of grammar might experience the failure to communicate.

✓ At early stages of language learning, when grammatical knowledge is not deep enough, the learner's main focus is on learning content words, which consumes **all or most of the learner's PM capacity**.

✓ At later stages of language learning, when lexical access is easier, PM capacity is redeployed for learning more complicated grammar.

Repetition and Vocabulary Learning

✓ Successful learners not only use a variety of strategies but also **keep records of new words and practice them repeatedly.**

✓ The frequency of repetitions required to acquire a list of words is of great importance in this process, and there is a special relationship between word exposure and vocabulary retention.
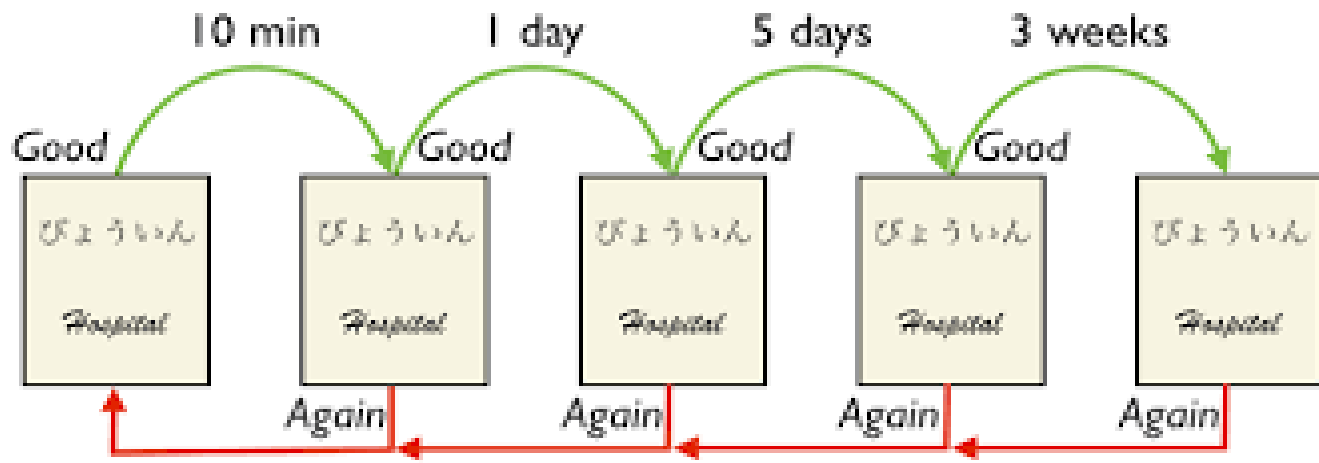
Spaced Repetitions
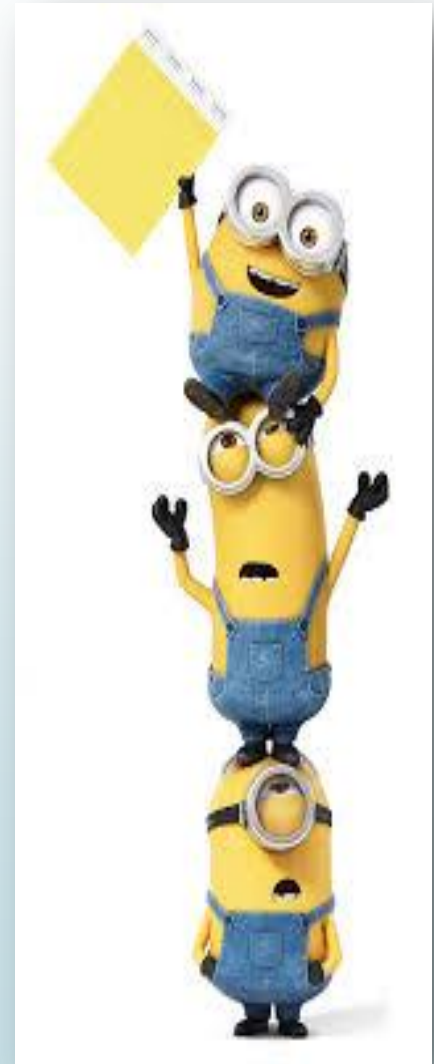
✓ While vocabulary acquisition is certainly contingent upon repeated encounter with target words, exposure frequency alone might not ensure higher acquisition rates of unknown words.

✓ Research indicates that spaced repetitions enable the learners to keep information in memory in a way that makes it less vulnerable to forgetting than non-spaced repetitions.

Different Findings about Spacing

Kang et al. 2014: Expanded retrieval spacing and equal-spaced practice produce the same amount of retention after eight weeks.
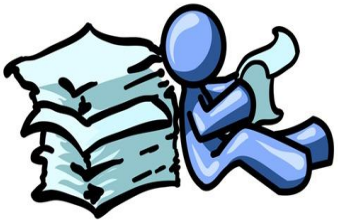
Nakata (2015): Vocabulary acquisition under equal and expanding schedules demonstrates a significant advantage for gradually increasing the interval schedules (2015).

Cull (2000): When average spacing is controlled, there may be some restrictions on the advantages of expanded over equal spaced retrieval and, in some cases, there may be no important difference between these two conditions.

Research Question

Do equal spacing, expanding spacing, and massed exposure have statistically different effects on EFL learners' receptive and productive vocabulary retrieval?

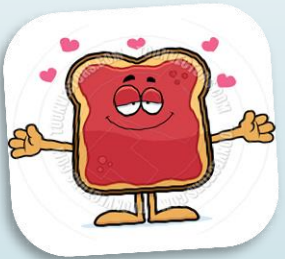# *Instrumentation*

The Preliminary English Test (PET for schools)

A teacher-made Vocabulary Knowledge Scale (VKS) pre-test

A teacher-made Vocabulary Knowledge Scale (VKS) post-test

Procedure: Pre-Tests

Administering the Homogeneity Test

The Preliminary English Test was used to check homogeneity in terms of English language knowledge (63 participants).

Randomly divided into one control and two experimental groups

Administering the Vocabulary Pre-test

A VKS pre-test including 35 vocabulary items was administered to the three groups in order to select 20 completely unknown word pairs for the experiment.

The selected 20 target word pairs: two 10-item A and B sets.
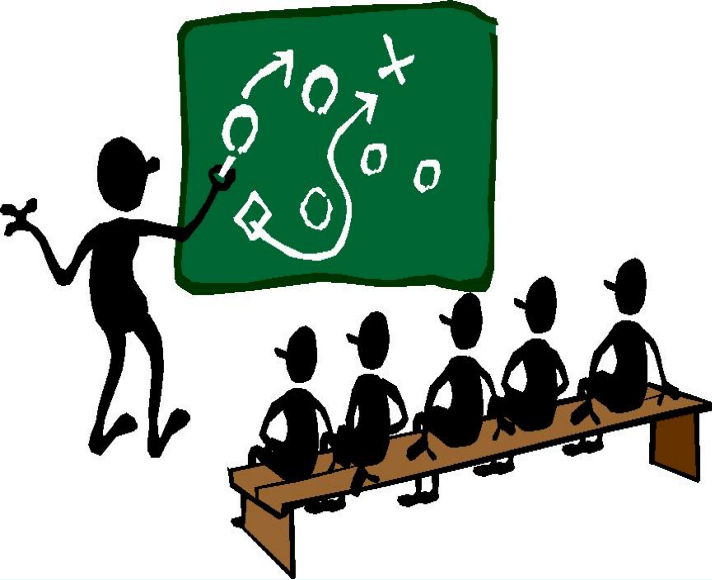
VKS

1-I don't remember having seen this word before. (1)

2. I have seen this word before but I don't know what it means. (2)

3. I have seen this word before and I think it means ….. (synonym) (3)

4-I know this word. It means …. (synonym) (4)

5-I can use this word in a sentence, e.g :….(if you do this section, please also do section IV) (5)

The twenty target word pairs were those with a score of 1 or 2.

Procedure: Treatments

Control group

Both sets of words (sets A and B) under a no-spacing or massed learning condition: all target items were studied 4 times in a row following a 0-0-0 schedule .

EX1

Set A under an equally spaced condition (based on a 2-2-2 encounter schedule) and Set B under a 0-1-5 expanding spacing condition. .

EX2

Set A under the same expanding condition and set B under the same equal spacing condition, thus counterbalancing the effects of the order of exposure to the spacing conditions

Design

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ex1	PET	_	O1	AB	B	_	AB	_	_	A	_	_	AB	O2		_
Ex2	PET	_	O3	AB	A	_	AB	_	_	B	_	_	AB	O4		_
C	PET	_	O5	AB	AB	AB	AB	O6								_

Conclusions and Discussion

➤ All the three groups, regardless of the encounter conditions, performed significantly better on their post-test.

➤ Significant changes in receptive vocabulary gain were only observed under the equally spaced condition (2-2-2).

Justification and Discussion

1. **In the present study, the repetitions and the post-test were given over multiple spaced learning sessions.**

✓ *Giving the repetitions and the post-test within any single session, however it may be scheduled, is irrelevant to real-world learning scenarios and rarely sufficient for long-term retention.*

2. **The timing point of testing influences the retention.**

✓ *If words are tested minutes after the encounter, the loop is still active. At that point, it is difficult to say if a record has been created yet.*

3. **Productive retrieval is clearly more demanding than receptive retrieval.**

Further Research

1. **Address the optimum spacing condition for vocabulary learning and retention.**

2. **Use a delayed post-test to measure long-term vocabulary retrieval.**

3. **Study different spacing conditions over longer periods of time, with larger samples, at different proficiency levels.**

4. **Use a scale other than the Vocabulary Knowledge Scale to measure the students' receptive and productive vocabulary gain.**
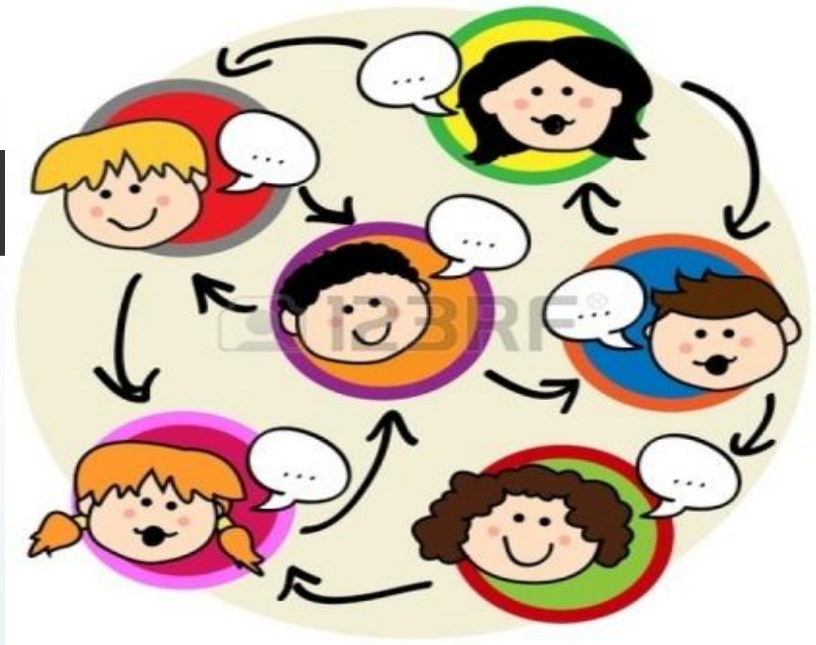
What Does it all have to do with technology?

➥ **Having more repetition everywhere.**

➥ **Performing controlled work at home.**

➥ **Using LMSs to control the spacing, time, and frequency of exposure .**

➥ **Having access to a variety of exposure tools such as digital flash cards.**

Thank You !!